

REMARKS

The application includes claims 1-9 and 11-18 prior to entering this amendment.

The examiner objects to claim 7 for informalities.

The examiner rejects claims 1, 2, 7, 11, 12, 15, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Yang (U.S. 2002/0168034 A1) in view of applicant's own admitted prior art (AOAPA) and McCarty (U.S. 6,704,353 B1).

The examiner rejects claims 3, 5, 6, 8, 9, 14, and 17 under 35 U.S.C. § 103(a) as being unpatentable over Yang in view of AOAPA, McCarty, and Serra et al. (U.S. 5,536,902).

The examiner rejects claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Yang in view of AOAPA, McCarty, Serra, and Gunzelmann et al. (U.S. 2001/0028673).

The examiner has failed both to reject claim 18 for any reason. The applicants ask the examiner to either allow or detail a basis for rejection of claim.

The applicants amend claims 1-9 and 11-18, add claims 19-23, and had previously canceled claim 10.

The application remains with claims 1-9 and 11-23 after entering this amendment.

The applicants add no new matter and request reconsideration.

Claim Objections

The applicants amend claim 7 to replace "PSIS" with —PSK— and thereby obviate the examiner's objection.

Claim Rejections Under § 103

The examiner rejects claims 1-2, 7, 11-12, and 15-16 as obvious over Yang in view of AOAPA and McCarty. The examiner rejects claims 3, 5, 6, 8, 9, 14, and 17 as obvious over Yang in view of AOAPA, McCarty, and Serra. The examiner rejects claim 4 as obvious over Yang in view of AOAPA, McCarty, Serra, and Gunzelmann.

The applicants disagree for the reasons that follow.

Claim 1 recites *removing direct current (DC) offsets from said I and Q baseband signals*. Claims 7, 11, 15, 19, and 21 include similar language. The examiner alleges that the applicants admit that "it is well known that in a receiver, DC offset cancellation is required and performed

so as to remove the DC offset that arises from local [sic] oscillator leakage.”¹ The specification further provides that “those skilled in the art will appreciate, DC offsets arise from local oscillator (LO) leakage or feedthrough.” The applicants made no general admission that a person of skill in the art would require DC offset cancellation in any circumstance much less in the method and circuit recited in the claims. Rather, the applicants described the origin of DC offset and provided that offset cancellation is necessary in the particular method and circuit that is the subject of this application because the offset voltage can saturate that very circuit. The applicants ask the examiner to provide art that discloses the particular element recited in the claims or remove the rejection of the claims.

Claim 1 further recites *mapping the modulated I and Q baseband signals to a unit circle on a PSK constellation*. Claim 7 recites *a M-ary phase shift keying (PSK) mapper to map the DC offset corrected I and Q baseband signals to a quantized PSK signal constellation*. Claim 11 recites *mapping the modulated I and Q baseband signals to a unit circle on a PSK constellation*. Claim 16 recites *a M-ary phase shift keying (PSK) mapper to map the I and Q baseband signals to a quantized PSK signal constellation*. New claim 19 recites *a M-ary phase shift keying (PSK) mapper to map the corrected I and Q baseband signals to a quantized PSK signal constellation*. Claim 22 recites similar language.

The examiner acknowledges that Yang fails to disclose the previously recited amplitude normalization but alleges that McCarty “shows a receiver wherein amplitude normalization and modulation is performed on I and Q baseband signals.”² The applicants disagree on the examiner’s interpretation of McCarty.

McCarty’s magnitude tracker 110 performs three functions: “1) estimation of the mid-ring magnitude; 2) normalization of the magnitude to the inner ring value; and 3) filtering of the normalized value.”³ McCarty normalizes each point “302, 304, 306...of the magnitude signal M (curve 310)”⁴ by comparing to “the corresponding point 303, 305, 307,... on the mid-ring value of signal curve 320. Magnitudes above the mid-ring value are normalized to the inner ring.

¹ Office action dated 8/24/2007, page 4.

² Office action dated 8/24/2007, page 4, paragraph 3a.

³ McCarty, column 4, lines 33-37.

⁴ McCarty, column 5, lines 20-21.

Magnitudes lower than the mid-ring reference are assumed to be inner ring values and hence are not modified.”⁵

Unlike McCarty where the magnitude signal M is normalized to the estimated mid-ring value, the claims recite mapping the *modulated I and Q baseband signals*. The magnitude signal M “consists of an array of magnitude values” derived from block 202 of figure 2.⁶ “The inputs to the magnitude tracker 110 [shown in Figure 2] are the magnitudes of the quadrature I and Q pair, from which the magnitude of the signal is derived from the square root of the sum of the squares of the I and Q components, i.e., $\sqrt{I^2 + Q^2}$, as shown in block 202”⁷

Moreover, the claims recite mapping the modulated I and Q baseband signals to a *unit circle on a PSK constellation* or to a *quantized PSK signal constellation*. McCarty appears to disclose normalizing the magnitude signal M according to an estimated mid-ring value. McCarty normalizes the M signal values above the mid-ring value to the inner ring, while it maintains unmodified the M signal values below the mid-ring value.⁸

It appears that the examiner has misconstrued applicants admission regarding the removal of DC offsets. Moreover, McCarty fails to disclose the recited mapping. Combining Yang with McCarty, even if such a combination were both reasonable to a person of skill in the art and would result in an operable method and circuit, fails to disclose the recited claims.

⁵ McCarty, column 5, lines 22-27.

⁶ McCarty, column 4, lines 40-51.

⁷ McCarty, column 4, lines 11-16.

⁸ McCarty, column 3, lines 23-26.

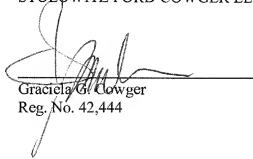
Conclusion

In view of the foregoing, applicants respectfully submit that claims 1-9 and 11-23 are allowable and ask that this application be passed to allowance. If the examiner has any questions or believes that a telephone conference would expedite prosecution of this application, applicants encourage the examiner to call the undersigned at (503) 224-2170.

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Respectfully submitted,

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